High-Flux Dialysis Membrane with Improved Separation Behaviour

Abstract

A hydrophilic, semipermeable hollow-fibre membrane for blood treatment, with an integrally asymmetric structure based on a synthetic polymer. The hollow-fibre membrane possesses on its inner surface a porous separating layer and an open-pored supporting layer adjoining the separating layer, and has an ultrafiltration rate in albumin solution of 25 to 60 ml/(h·m²·mmHg). The hollow-fibre membrane is free from pore-stabilising additives, and has a minimum sieving coefficient for cytochrome c of 0.8 and maximum sieving coefficient for albumin of 0.005. Method for the preparation of such membranes based on coagulation induced by a non-solvent, whereby a spinning solution of a synthetic first polymer and possibly a hydrophilic second polymer is extruded into a hollow fibre through the annular slit of a hollow-fibre die with simultaneous extrusion of a coagulation medium as the interior filler through the central opening of the hollow-fibre die, the interior filler initiating coagulation in the interior of the hollow fibre as a result of which a separating layer on the inner surface of the hollow-fibre membrane is formed as well as the membrane structure, the method being characterised in that the interior filler contains a polyelectrolyte with negative fixed charges.